

Methodology

The field survey methodology and the process of land suitability assessment are schematically presented in Figures 2 and 3 respectively.

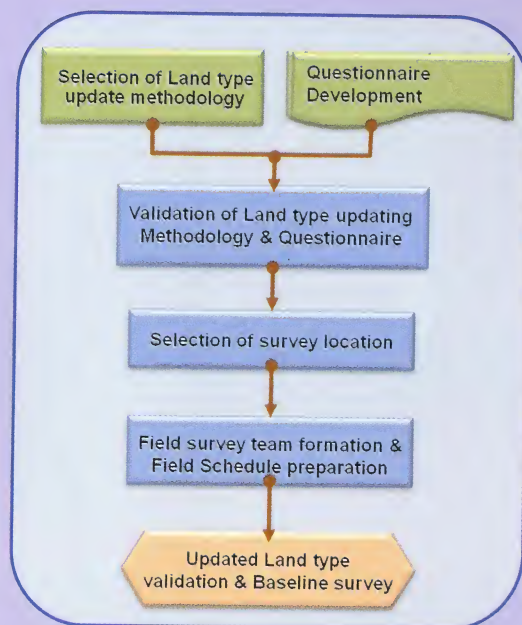


Figure 2. Methodology of field survey

Outputs & Deliverables

The major expected outcomes of the project are: baseline survey methodology, GIS based database, GIS based land/crop suitability assessment tools, land type and land use maps and a comprehensive technical report.

However, according to the scope of the work described in the Terms of Reference, the major outputs and deliverable will be as below:

- A brief inception report including detail Project Implementation Plan/Work Plan
- Baseline/benchmark survey completion report
- Development of database and GIS based tools for land suitability assessment

- Finalization of the land suitability maps and preparation of operational manual for GIS based tools for land suitability assessment
- Project completion report (PCR)

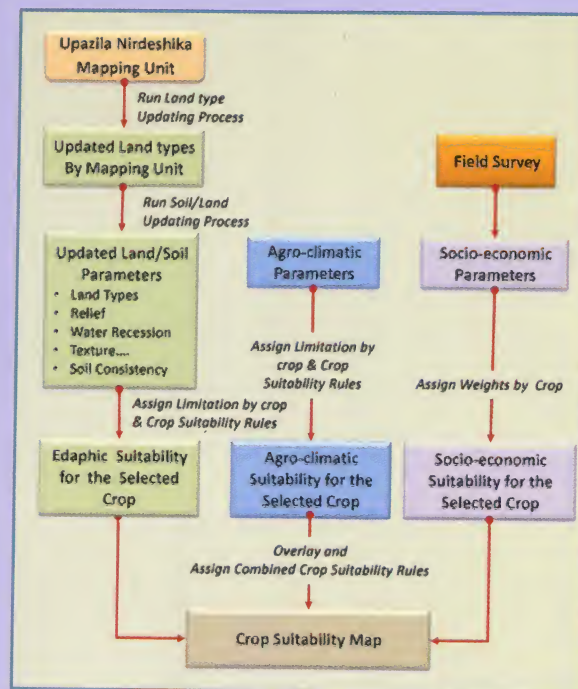


Figure 3. Process of Land Suitability Assessment

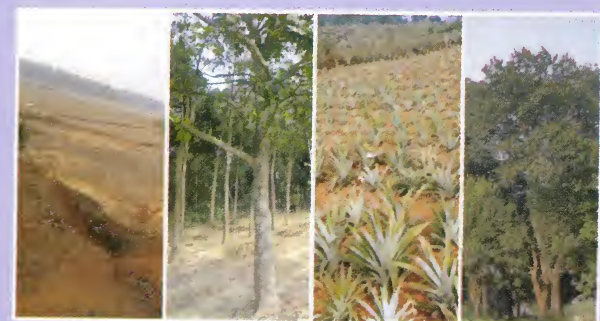
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Application of GIS for Farm Productivity Enhancement through Land Suitability Assessment of Major Cropping Patterns of Bangladesh



National Agriculture Technology Project (NATP)
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Background

The gross total area of the country is about 14.8 million hectares, of which 8.4 million hectares is net cultivable area (NCA). Currently, cultivable area is being lost at an alarming rate due to encroachment by settlements, roads, industries, urban and other infrastructure development. However, most of the agricultural lands are utilized for growing more than one crop. Cropping intensity at national level is about 180%. Two crops are grown on half of the total agricultural lands. Three crops are grown on 13% of these lands. The increase of crop production is only possible through raising crop yield and intensity. The situation appears to be negative as in every year we are losing our valuable agricultural lands to meet other demands of the rising population. The national demand for food grain production is increasing every year against the decreasing trend of net cultivable land. This is a big challenge for the nation, which can be met through proper utilization of agricultural land. In this backdrop, appropriate land use techniques need to be developed and the farmers should be advised to select the right cropping pattern for their land. This would increase his land productivity and benefit the farming community financially.

Project Goal

Optimization of present utilization of agricultural lands through GIS based technology.

Project Purpose

The objective of the project is to provide land use information and options to different stakeholders on the choice of rotation of their crops that ensures the increase of food production and maximizes the farmer's income. More specifically the project objectives are:

- Updating and validation of the land/crop suitability database in order to derive appropriate farming practices for sustainable socio-economic condition.

- Development of user friendly GIS based tools (software) for land suitability assessment.

Targeted Beneficiary

The findings of the study will benefit the agricultural scientists, planners, decision makers and the farmers in particular. The process will facilitate optimizing the land use thereby increasing the production and maximizing the benefits keeping the productivity of land at sustainable level. At the national level, the self-sufficiency in food grain production will be sustained through the increase of land productivity. However, the farmers will be ultimate beneficiaries from the findings of the project.

Project Duration

April 2011 to December 2013.

Geographic Coverage

Based on the major agro-ecological regions of the country both under extensive farming practices as well as vulnerable/potential areas (drought, salinity, water availability, soil condition, cropping pattern, marketing facilities etc.) six upazilas from five districts were selected for the study, as presented in Table 1 and Figure 1.

Division	District	Upazila
Khulna	Jessore	Bagher Para
Dhaka	Tangail	Ghatail
Chittagong	Comilla	Laksam
Khulna	Bagerhat	Mollahat
Rangpur	Dinajpur	Parbatipur
Dhaka	Tangail	Tangail Sadar

Table 1. Six Selected Upazilas as the Study Area

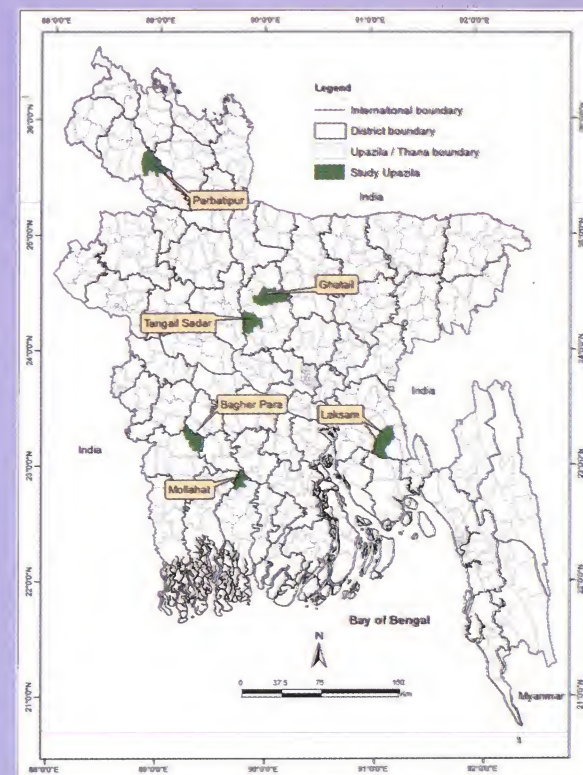


Figure 1. Map of the study area

Implementation

BARC as the lead agency of this study is responsible for the collection of the relevant information generated by the NARS institutions and others organizations and to develop a model for land suitability assessment. The Soil Resource Development Institute as a partner of this study and as a generator of soil and land information will be responsible for providing updated soil and land data. As per project provision, BARC engaged CEGIS (Center for Environmental and Geographic Information Services: A public trust under the Ministry of Water Resources) though outsourcing to conduct this special study through (i) Baseline survey of the study areas and (ii) Development of GIS based tools (software) for land suitability assessment applying advanced level GIS and remote sensing techniques.